Wastewater Treatment Plant
DACA41-02-R-0011

Questions & Answers

1. Drawing 24-M-3 indicates four polymer storage totes and four portable mixers. Are these owner furnished? We cannot find specifications on them.

The totes and mixers are provided by the polymer supplier.

2. What is the height of the wire mesh partition at tool crib and parts storage?

Shown on sheet 18-A-5.

3. Will the programming and integration of this Metasys M5 software be performed by Riley base personnel or is it the contractor's responsibility?

The programming will be the contactor's responsibility.

4. Section 11391, paragraph 1.4.7.2, Load cases. Is this backfill typical for all new structures or just section 11391, Continuous loop reactor? Please advise.

Section 11391 requirements apply only to work in section 11391.

5. Section 05500, paragraph 2.7, states embedded frames to be stainless steel unless indicated otherwise. Section 05500, paragraph 2.1.6.2, indicates steels shapes are to be used unless noted. Section 05530, paragraph 2.5.3 indicates supports of grating to be same materials as grating. Please clarify the contradictions.

Stainless steel is required for grate supports that are embedded in concrete per 05500, paragraph 2.7. This matches note 6 in detail 5566. Otherwise, supports not embedded in concrete to be same material as grating.

6. If steel fabricator's AISC certification includes the special paint endorsement "P" are they required to comply with section 09900 paragraph 1.3.2 also?

Yes.

7. Section 05500 paragraph 2.1.6.4 states surfaces of galvanized steel and aluminum in contact with etc are to be primed per section 09900. Please advise where in 09900 this primer is specified and also please confirm galvanized steel is to be primed since 09900 3.13 item 7 says not to paint galvanized surfaces.

Primer for galvanized surfaces is on 09900-19, paragraph 3.12.1.E. 3.13 item 7 further states unless otherwise specified or subject to immersion, so yes, follow 05500 requirement.

8. Sheet 4-AS-1, screening room. RFP GS-2 and GS-1 detail 5566. Detail 5566 does not address what type of embed to use for FRP grating.

SST or FRP.

9. Sheet 4-AS-1, column lines 4-5 and B. Does opening to north of covered grating opening get covered? How about area to the west (grit chamber)?

Neither area is covered. Both have handrail protection per sheet 4-S-4.

10. Sheet 8-SM-4, detail 2, detail 5501 is called out. In 5501 aluminum [stringer is called out as C12x7.41. Our sources do not show a 7.41 weight. Please advise.

This size aluminum channel has been used on other projects in the area and should not be a problem to find.

11. Spec 05500, paragraph 2.1, stainless steel bars and angles type 316. Standard detail 5087 on sheet 48-D-23 shows stainless angles to use for connections. 6x4x3/8 is only made in 304SS. 4x3-1/2x3/8 is not made in SS at all.

Preliminary info is that SST is typically available only in equal leg angles. Therefore, the fabricator would have to purchase L6x6x3/8 and L4x4x3/8 and trim one leg to meet the requirements.

12. Sheet 134 does not show concrete stoops, are they required? Sheet 96 does not show concrete stoops at doors to detail 5501. Sheet 35 shows stoops at the doors. Sheet 86 refers to concrete stoops at doors to detail 5501. This detail does not show concrete stoops. Please advise.

All single and double man-doors require concrete stoops per detail 3337 on 48-D-16 and as shown on the civil plans. See also note 8, sheet 2-C-6.

13. Is there an odor control system on this project?

Yes. The odor control system is covered under spec 11242, ferrous chloride systems. Also shown on the plans on sheets such as 30-SM-4 and 28-S-2.

14. Amendment 3, page 5, item 7: drawing 28-AS-1 changed single door in west elevation to double doors. Does this now require two door stops?

Door stops to be provided in accordance with the hardware set HW-4 as called out on the door schedule.

15. Section 02315A references ASTM D1557 (commonly referred to as "Modified Proctor") and this is the only laboratory compaction standard listed. This is not an appropriate standard to use for buildings and backfilling pipe trenches or concrete structures. Use of ASTM D1557 would result in putting excess loadings on pipes and against structures causing damage.

The essence of this comment is that ASTM D1557, which is the "modified proctor" should not be used for the cohesive material specification, instead, ASTM D698, "standard proctor" should be used (the questioner claims using the "modified proctor" spec will damage the structure being backfilled.) This is incorrect; the "modified" method does not inherently deliver more energy to the ground, provided the specification is correct. For example, requiring 90 percent of modified proctor, like we have under structures, is the same as requiring 95 percent of the "standard proctor" under structures. All of the values for compaction requirements given in percent "modified proctor" in Sec 02315a, page 6, are appropriate based on the Foundations and Earth Structures Manual. Care should be taken not to compact backfill around pipes and structures unless there is sufficient cover, or sufficient distance (respectively) to avoid damaging the concrete. This is true with all compaction of soil, no matter what the specification. Also, care should be taken not to backfill around structures with expansive clay soils.

16. Section 02315 also requires noncohesive materials to be compacted to this standard which is incorrect. We believe the specifications should be changed to use ASTM D698 (Standard Proctor) for cohesive materials and Relative Density for noncohesive materials.

The concern is that compaction of granular materials should not be specified in "modified proctor" but should instead be given in "relative density". This is also not true, as modified proctor is more appropriate for specification of granular fill placement (and often more easily obtained).

17. Section 13110A requires the use of cathodic protection on ductile iron fittings, valves, and fire hydrants on PVC pipelines. We have consulted a Corrosion Expert as required in paragraph 1.2.1 and there are several problems with this Section.

a. The pipe bedding material will be Select Fill as required in Section 02315A. This material will not conduct a sufficient current for the cathodic protection to work.

There seems to be a misunderstanding how the cathodic protection system operates. We have selected a non-native backfill specifically because it has less of a potential to conduct electricity. It should be noted that currents need not be large to have a severe impact on the pipe. The anodes should be installed not in the bedding material rather they should be installed in native material outside or below the pipe trench.

b. Paragraph 1.2.2.1 states "Coating shall be as required for underground metallic pipe". Underground metallic pipe is required to be polyethylene encased. The cathodic protection will not work with this coating.

Again we've selected polyethylene encasing because it reduces electric potential. Cathodic protection is still required because there is the possibility that the contractor will leave soil between the encasement and the pipe or that there will be a hole in the polyethylene encasement.

c. Paragraph 3.7.2 tells us that if rock is encountered, the Contractor must come up with an alternate plan. It appears from the boring logs that we will be encountering rock in most locations. We would suggest the best method for this project would be to wrap the fittings, valves and hydrants on PVC lines in polyethylene encasement just as metallic lines will be.

There is no need to wrap PVC lines with polyethylene. If rock is encountered in sufficient area where the anode cannot be moved to avoid the rock, then the anode should be placed in a location agreed upon by the Government.

18. Section 11391, Paragraph 2.4.1, Eimco Aerator Impeller. Why is there such a difference in material of construction for the slow speed aerator blade (carbon steel) versus the previously mentioned rotor blade aerator that is specified 10 ga 304 Stainless steel? I would think that all parts should be equal of 304 SS to reduce long term maintenance. The Slow speed aerator is typically factory primed and then field painted when not supplied in stainless. Stainless steel certainly is an option for equality in the products material of construction. Also, rotor aerators are standard galvanized dipped after stamping.

The difference is because the low speed Eimco unit is a bigger, more robust piece of equipment compared to the Lakeside/US Filter equipment. It is CH2M HILL's experience that the specified construction materials provide for an equivalent longevity and level of maintenance. The construction materials should remain as specified.

19. Section 11354, Secondary clarifier Mechanism. This spec section describes two styles of clarifiers. A suction arm and a scraper design. Section 2.8.8 is the "one per clarifier" "sludge suction" and then section 2.8.13 describe Rake Arms. Please clarify as the drawings illustrate rake arms and not a suction type header.

The Secondary Clarifier Mechanism is actually specified under 11350A not 11354. Only one type of clarifier is specified. Section 2.8.8 specifies a Sludge Suction Header and Manifold. Section 2.8.13 specifies the rake arms that on one side support the manifold and on the other side supports any necessary counterweight, skimming devices etc. Sludge scraper blades are to be attached to the rake arm opposite the sludge withdrawal header per Section 2.8.13 under the heading of "squeegies" (part a). Drawing 8-SM-2 "Clarifier Illustrative Section" shows the sludge manifold with 2 full radius rake arms.

20. Section 11345 questions:

a. Para 2.1. Back pressure valves are not required for progressing cavity type pumps. Please clarify. The spec may have been based on a previous diaphragm pump system.

No backpressure is required for either a Polyblend or Dynablend system. However, it is CH2M HILL design practice to provide these valves to ensure a positive feed can be maintained. Also the spec calls for progressing cavity pump but this should have been "positive displacement pump" so either a diaphragm or progressing cavity pump would be acceptable

b. Para 2.2. Please clarify if water flow control is actually required. The control section does not specifically mention the proportional control feature.

In order to maintain a constant polymer feed concentration to the BFP and GBT an automatic control system is required. Polyblend can meet this requirement but not Dynablend. Basically it was the intent to get a polymer system that is fully automatic re: maintaining a preset liquid polymer concentration when more or less polymer solution feed is required, and with mechanical motor driven mixing. The Dynablend equipment does not adjust automatically for the preset liquid polymer concentration when more or less polymer solution is required, and does not use mechanical motor driven mixing - but the operator has to manually adjust the preset liquid polymer concentration thus more operator's attention is required. The liquid polymer concentration adjustment has to be done manually. Accordingly, there are parts of the specification that apply to the Polyblend units and parts that apply to the Dynablend units. Dynablend was named as a second manufacturer but can not meet those parts of the spec with regard to the water control system that automatically maintains the preset liquid polymer concentration. Polyblend can meet spec in this regard, and can also supply a system that has only manual control for liquid polymer concentration adjustment. Both units are suitable for this application - one just has better features. The respective spec parts will be applied during the submittal review process.

c. Para 2.5.3.4, 5, 6: Per paragraph 2.4.4.b, the water flow indication and control is to be via a rotameter type flow indicator equipped with integral rate-adjusting valves. Please clarify function of make-up water LCD and increase and decrease push-buttons.

With an automatic water control system like Polyblend, a system with a rotameter and integral rate adjusting valve does not apply but applies to a Dynablend system. The LCD provides water flow indication and the push button allows water flow to be adjusted under manual control.

d. Para 2.5.3.9: Please clarify water flow remote signal. The functional description, section 2.5.5, does not describe a water proportioning control system.

The water flow remote signal is part of the automatic inbuilt system that maintains a preset liquid polymer concentration.

e. Para 2.7.4. Please clarify the specified pressure settings. Why would the polymer solution be controlled to 100 psi when the water supply is specified to be controlled to only 80 psi? We are assuming the term polymer solution to be the diluted polymer exiting the polymer blending unit. It appears that the specs may contain elements of two different types of control systems. It is unclear if a proportioning control system is required.

The 100 psi pressure is the maximum design working pressure of the equipment but as specified the operating pressure is to be adjusted to 80 psi.

21. Sheet 40-E-25, CP-0604 is shown with a circuit P3 going to MCC-R. MCC-R (40-E-10) has no circuit to accommodate this feeder. Please clarify.

The circuit is shown fourth from right on MCC-R.

22. Sheet 40-E-37 eg: There are a number of squares with the letters SD inside shown. There is no corresponding symbol shown on the symbol list. Please identify.

SD is smoke detector – see sheet 1-G-12, HVAC symbols.

23. Sheet 40-E-25. P-0602-01 is shown with a circuit P3 going to MCC-R. MCC-R (40-E-10) has no circuit to accommodate this feeder. Please clarify.

The circuit is shown fifth from left.

24. Sheet 40-E-25. P-0602-02 is shown with a circuit P3 going to MCC-R. MCC-R (40-E-10) has no circuit to accommodate this feeder. Please clarify.

The circuit is shown sixth from left.

25. Sheet 40-E-28. What is panel DDS as shown on this drawing and also referenced on EF-18-1 Motor Control Diagram on 40-E-12?

DDS is the HVAC control panel.

26. Sheet 40-E-31. A feeder from TJBA is shown going to LCP-HW. I cannot find LCP-HW on the Headworks Drawings. Where is it located?

LCP-HW is the local control panel for the Headworks; it is the cabinet shown on the drawing that contains the PLC.

27. Sheet 40-E-36. MD-24-01 is shown with a circuit P2 going to MCC-D1. MCC-D1 (40-E-11) has no circuit to accommodate this feeder. Please clarify.

MD-24-01 is a 120v damper motor. The feed for this damper comes from the control transformer in the MCC. See sheet 40-E-13.

28. The specification makes no reference to the use of PVC embedded in slabs. Will this be permitted?

No.

29. Sheet 40-E-28. There are three square symbols in the northwest corner of the electrical room, labeled EF-18-1, EF-18-2, SF-18-1. Please identify these symbols.

Fans are identified on sheet 1-G-14.

30. Sheet 40-E-37. There are two symbols (a square with a bold type M inside) shown along the interior south wall. This symbol does not appear on the Symbol list. Please identify.

These are motorized dampers, see the mechanical legend.

31. Sheet 40-E-36 and 40-E-37. There are fire alarm system symbols shown on both drawings, however, only those shown on 40-E-37 are in agreement (type and quantity) with the Fire Alarm System Riser Diagram on sheet 40-E-16. Please clarify what changes are required in the riser or the drawings to bring the system into agreement.

40-E-36 is the power sheet. 40-E-37 is the light and the fire alarm system sheet. 40-E-37 and the riser diagram therefore govern over 40-E-36.

32. Sheet 40-E-9. Please provide conduit and wire callouts for the following:

a. Feeder from MCC-C to TX-C1. Shown on sheet 40-E-31.

b. Feeder from TX-C1 to LP-C1. Shown on sheet 40-E-31.

33. Sheet 40-E-10. Please provide conduit and wire callouts for the following:

a. Feeder from MCC-R to TX-R1. See amendment 1, insert drawing 40-E-25A.

b. Feeder from TX-R1 to LP-R1. See amendment 1, insert drawing 40-E-25A.

34. Amendment 2 reissued drawings 40-E-46 through 40-E-52. It is not clear why as there appears to be no changes to these drawings. Please clarify.

Only those sheets identified as changed on the SF30 were changed. Other sheets were reissued without change by mistake on the CD.

35. Sheet 40-E-23. At three locations on the lower level plan the symbol for exposed conduit is shown with the letter 'S' in it. This does not appear on the symbol list. Please identify.

The 'S' shown indicates a toggle switch in the circuit.

36. Sheet 40-E-25. The feeders between MCC-R and AFD-0601-01, AFD-0601-02 and AFD-0601-03 are not called out on this drawing nor on the one line diagram on sheet 40-E-10. Please provide these callouts.

The circuits between the AFDs and the MCC originate at the motors, and are shown on sheet 40-E-25. The callouts for these circuits is [P3].

37. Sheet 40-E-29. In the lab area, immediately east of the door, there is a switch symbol with a lower case 'm' next to it. This is not called out on the symbol list, please identify and specify what it controls.

Manual motor rated switch per sheet 1-G-17.

38. Sheet 24-B-2. MD-24-03 through MD-24-05 aren't shown on 40-E-36 power plan. Should they be?

No, power control and physical location are integral to and with the MUA's.